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ADDRESS IN SURGERY.

SOME RETROSPECTIVE AND PROSPECTIVE THOUGHTS ON SURGERY.

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OF DETROIT.

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Our generation has witnessed one of the most active and progressive eras in the history of that department of medical science to which the attention of this Section is especially devoted. It has occurred to me that a concise and candid statement of some of the impressions made upon my own mind and some of the conclusions at which I have arrived as the result of active experience, extending over a period of at least a quarter of a century, might not be altogether uninteresting to this Section, which has conferred on me the great honor of electing me its chairman; an honor which carries with it the responsible duty of delivering an address on the present occasion.

The vastness of the subject and the shortness of the time at my disposal necessitate a brevity and conciseness of style which might easily be construed as implying a spirit of dogmatism, which is now, once for all, emphatically disavowed. It is possible to hold well-defined opinions and still be tolerant of those who differ from us; and no one could approve or admire the spirit of scientific skepticism more than I do. So that it goes without saying that I freely and fully concede to every one the right to judge for himself how much or how little of what is here said he shall accept as true. Any one who will reflect for a moment how often he has had occasion to modify his opinions on important surgical matters will surely hesitate a good while before venturing to be censorious toward those who fail to accept his views or his methods of practice. Not only so, but as we look around us and observe the almost diametrically opposite views which authorities of equal eminence hold on the same subject, we cannot but feel that it is absurd and presumptuous for any one to attempt to dictate to his brethren in the profession what they shall accept as final truth in surgery.

One thing is certain, that the progress of surgery during the last quarter of a century has been unprecedented. To correctly analyze the methods and the results of this wonderful period of activity, winnowing out whatever has proved to be false, misleading or unreliable, and giving proper significance and credit to the genuine and the permanent, is a profitable employment and a true labor of love for the scientific student and practitioner of surgery.

Without claiming for myself any special fitness for this work, the mere fact of my election to this honorable office encourages me in the hope which I have expressed, that a frank statement of some of the opinions which my observation and experience have led me to form may be listened to with interest by my present audience. Perhaps, too, the fact that I have been actively employed during almost the entire period of my professional life in the work of teaching surgery to large classes of medical students may add somewhat to the interest of such a summary of my views on a few of the great surgical problems of our day as I here propose to make.

The marvelous progress of modern surgery in our time is commonly attributed to two great agents, namely, anæsthetics and antiseptics. But with all due deference to these, it should not be forgotten that they themselves are only part of the fruits of a great general movent all along the line of the natural sciences, and that advances in anatomy, chemistry, physiology, histology, etc., have contributed in innumerable ways to the progress of surgery; and it is no more than just that the great army of able and enthusiastic laborers in these collateral departments should receive adequate recognition for the services which they have rendered, directly or indirectly, to surgery. Nor should the fact be overlooked that even before the beginning of the present surgical era, that is, before the introduction of anæsthetics, and long before antiseptics were dreamed of, surgery was a great scientific art, and many of the principles and the methods promulgated and taught by our fathers stand unchallenged and unchanged to this day. To those great minds who cultivated and practiced surgery without the aid of our "modern conveniences," it is impossible to concede too high a meed of praise. The least we can do is to acknowledge with grateful candor the extent of our indebtedness to them.

That the introduction of anæsthetics constitutes one of the most important events in the history of surgery is a fact generally conceded; and still it seems to me that, in trying to explain the rapid progress of our art in recent times, a mistake is often made in attributing to other causes a good deal that is really due to this. For example, it is a common thing now-

a-days to hear much, if not all the credit of the wonderful advances in the surgery of the abdomen, the surgery of the articulations, the surgery of the blood-vessels, etc., given to Listerism, or antiseptic devices. Now, the fact is that *antiseptics without anæsthetics could have had but a comparatively limited and insignificant field af usefulness;* and before attempting to decide or define the true value of antiseptic processes, let us try to do justice to some of the other factors in this interesting problem.

The introduction of anæsthetics at once enlarged the field of operative surgery, in the first place by enabling patients to undergo operative procedures which otherwise could not be endured; in the next place, by enabling many persons to cultivate and acquire operative skill and experience who, without the aid of anæsthetics, would have shrunk from the dread ordeal of performing a surgical operation. The introduction of anæsthetics inaugurated an era of unprecedented enthusiasm in the cultivation of every department of surgery. And out of this, as a necessary and natural consequence, has come the splitting up of surgery into subdivisions which are now dignified by the name of *specialties;* as, for instance, ophthalmology, otology, gynecology, etc., all of which must still be included under the head of *surgery*. The oculist or the gynecologist who is not a surgeon, in the largest and best sense of the term, is in great danger of becoming a charlatan.

To the introduction of anæsthetics, more than to any other agency, is due the credit of this wonderful extension of the boundaries of modern surgery. It should not be forgotten that this great movement had not only started, but had made considerable progress, before the theories of Pasteur and their practical application to surgery by Joseph Lister were thought of. Perhaps the best illustration of this assertion is derived from the history of abdominal surgery. Spencer Wells, Clay, Atlee, Peaslee, Dunlap and Keith, as well as others, had achieved world-wide fame as ovariotomists long prior to the advent of antiseptic surgery. In his address on surgery to the British Medical Association in 1865, Prof. James Syme spoke as follows in reference to the operation of ovariotomy:

"The objections originally entertained with regard to both prognosis and diagnosis have been in a great measure removed through the careful discrimination of cases, while the operative procedure has acquired a corresponding degree of perfection, and the results are so satisfactory that the proportion of deaths does not exceed from 30 to 35 per cent. The most successful operator in Scotland is my friend and former house surgeon, Dr. Thomas Keith, who has operated in thirty-five cases and lost only nine of his patients."

In the United States and other countries to-day there are many ovariotomists who are honestly of the belief that by the use of strict antiseptics they possess an immense advantage over those ovariotomists of preantiseptic times. They certainly have the unspeakable advantage of the vast accumulations of the recorded experience of operators who, like those whom I have named, have been so careful and thorough in the publication of their cases, their observations and their methods; and still, I ask, can it be truly said that the mortality of ovariotomy has, on the whole, materially lessened since Professor Syme uttered the words which I have just quoted? When full and fair credit is given to the other aids which have come to the profession as a whole, through increase of knowledge and enlargement of experience during the period of wonderful surgical activity from 1865 to 1888, how much room is left for credit on behalf of antiseptics? In our reflections and calculations on this point it is only just to note the remarkable fact that among the most eminently successful of the abdominal surgeons of to-day we find men like Tait, Bantock and others who claim that, so far as their experience in abdominal surgery goes, antiseptics have been weighed in the balances and found wanting, and by whom they have been denounced as a delusion and a snare. It has been customary of late years, when a successful operation of a new or exceptional nature, such as resection of intestine, cholecystotomy, splenectomy, etc., is recorded, to claim the result as another argument or fact in support of antiseptic surgery. And it may be that the belief in the marvelous advantages of such safeguards as it is supposed to furnish has inspired confidence beyond that which our increased knowledge of pathology, our improved dexterity in manipulation and our faith in the generally recognized and approved principles of surgery independently of antiseptics can afford us. But is it not just possible that too much value has been attached to the influence of antiseptics and too little to the numerous other factors which enter into this complex and many-sided problem? Is it not just possible that even if Listerism had never been heard of, surgeons would by this time or, at all events, sooner or later, have come to appreciate the immense value of perfect surgical cleanliness and conceded to it its true position in relation to all the other essential requisites of successful operating, such as tenderness of manipulation, efficient drainage, healthy surroundings, judicious dieting, conservation of blood, prevention of shock, wise and skilful nursing, etc.? All honor to Lister as the great apostle of surgical cleanliness, no matter what the ultimate fate of his theoretical views may be. The germ theory of disease as applied to surgery may be materially modified, or even proved to be in certain important respects erroneous; the use of carbolic acid, bichloride of mercury and the other germicides may ultimately come to be regarded as worse than useless, and all the complicated paraphernalia which constitutes antiseptic surgery declared unnecessary and absurd; and still the fact must remain that, whether right or wrong as a matter of abstract scientific truth, the theories and the methods of Lister have done much to encourage the progressive modern surgeon in his righteous ambition to carry his beneficent labors to the furthest limit of possible usefulness. The simplest and most obvious truths are often the most difficult of apprehension and application by those most interested in their effects. It will be a most striking and wonderful exemplification of this old and true saying if it should ultimately appear that the sum and substance of the life

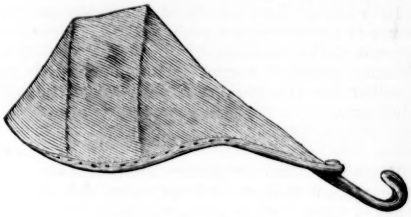
work of this great surgical prophet and his disciples is comprehended in the ancient scriptural admonition, "*Wash you, make you clean.*" Whatever the ultimate fate of the germ theory in surgery may be; whatever the fate of the so-called germicides like carbolic acid, bichloride of mercury, etc., may be, one thing is certain: that anything like a return to the old, loose and careless methods, as regards cleanliness, of conducting surgical operations and of dressing surgical patients is absolutely impossible; and for this the world will always feel grateful to Joseph Lister.

ANÆSTHETICS.

There are few subjects of surgical interest that have been so freely written about and discussed in our day as anæsthetics. Even the briefest review of this vast field of surgical literature would lead me far beyond the scope of this address. I merely refer to it for the purpose of declaring that, after very careful and respectful consideration of the views of those who have written and spoken on the subject, and after impartially testing the different substances recommended, I find myself irresistibly forced to the conclusion that, upon the whole, for all general purposes, chloroform possesses superior advantages. My own experience with it induces me to believe that, when carefully administered in suitable cases, it is little if at all more dangerous than other anæsthetics, and its advantages in other respects are too well known to require further illustration on the present occasion. Death under anæsthetics is in every case a great and shocking catastrophe; but when it occurs during some comparatively trivial procedure the circumstance is appalling. Fortunately, in the progress of surgery of late years, local anæsthesia by ether spray, cocaine, etc., has been found to constitute an efficient and altogether safe substitute in a large field of minor though painful operations. That in the near future other and better general anæsthetics than any yet known may be discovered, is surely not an

No. 1.—Chloroform Dropper.

unreasonable expectation, when we consider the ceaseless energy of earnest and brilliant students and experimenters in this as in all other departments of medical science. As a justification for my own faith in the safety and general efficacy of chloroform, perhaps I may be allowed to state that it is very nearly thirty years since I commenced using it, and so far no accident that could in any way be attributed to its use has occurred to disturb the early impressions as to its trustworthiness made upon my mind by the eloquent teachings of James Young Simpson and the no less powerful utterances and example of James Syme. To the use of the simple little apparatus which I here present I have come of late years to attach great value in the administration of chloroform.



No. 2.—Chloroform Inhaler.

No. 3.—Frame of Inhaler, uncovered.

THE MICROSCOPE IN SURGERY.

Who of us is unable to recall the time when great things were hoped for by surgeons from this truly wonderful instrument, which has done so much in other departments of science? Who does not recall the confident predictions indulged in as to what would be accomplished by its means in the diagnosis and classification of tumors, in the diagnosis of the different morbid fluids, and so on? Can it be claimed to-day that these hopes have been realized, these predictions fulfilled? I fear not. How much has it done to enlarge our knowledge of the essential characteristics of different kinds of pus? Can we by its means distinguish with perfect certainty between the pus of gonorrhea and the pus from a chancre or any other source? In short, has the microscope added anything to our powers as practical surgeons so far as this and other common surgical fluids are concerned?

In the diagnosis and classification of tumors great things were expected of it, and it was also expected that by its means the prognosis of morbid growths would become a matter of actual and unmistakable demonstration. That much information interesting to the scientific surgeon has been obtained as the result of vast efforts in the investigation of the ori-

gin and the essential nature of morbid growths no one can deny; but for the practical purpose of deciding whether or not a given tumor should be removed by operation, or for the purpose of determining the prognosis in relation to the question of return or the danger of general infection of the system, I have not been able to persuade myself that the microscope has added much if anything to our resources. We must still depend upon the ordinary clinical signs and symptoms, the anatomical relations, and the facts of its history in determining our views as to the true nature and the best treatment of a morbid growth.

In certain departments of practical medicine nearly related to surgery, such as the examination of urine, etc., the microscope is invaluable; but to the ordinary practical surgeon its usefulness has not equalled the expectations of its early enthusiastic advocates.

ELECTRICITY IN SURGERY.

Electricity is another modern addition to the armamentarium of the practical surgeon; and although it has in some directions proved disappointing, still it can, I think, with truth be claimed that when used for suitable purposes, it has demonstrated its right to the respect and gratitude of the profession. Much harm has been done and much unfair prejudice excited against this useful agent by the absurd and extravagant claims which have from time to time been made in its behalf as the result of inaccurate observations or unscientific deductions, and there is reason to fear that this kind of obstruction to the proper recognition of electricity as a surgical agent has not yet entirely ceased. That certain forms and degrees of urethral and other strictures are capable of being remedied by electrolysis skillfully and carefully applied I am prepared to believe; but when we are told that all other methods of treatment of this large and important class of surgical cases are to be completely superseded, or nearly so, by this one, my belief is that our duty as rational practitioners is to suspend judgment.

Cases of far-advanced, long-neglected stricture, with fistulæ in perineo and large deposits of dense, inflammatory tissue, will, in my opinion, still furnish a useful field for the operation of external perineal urethrotomy, an operation which I have performed with the most satisfactory results in a large number of cases which I do not believe would have yielded to any other method of treatment. Some years ago I performed the old operation of urethrotomy without a guide in a case of complete occlusion of the urethra, the result of laceration from fracture of the pelvis. The patient had passed all his urine through a perineal fistula for five years, not a drop having passed by the natural channel in all that time. The occluded portion of the urethra extended to a length of more than two inches. The operation, in which I was assisted by my colleague, Prof. Frothingham, and my brother, Dr. A. C. Maclean, was a long and difficult one, but was crowned with *absolute success*. And surely it will not be claimed that either electricity or any other method of treatment could have held out the least shadow of hope in such a case.

The testimony of Apostoli, Keith and others as to the efficacy of this agent in favorably affecting the growth and tendencies of uterine fibroid tumors, if confirmed by further experience, is certain to be regarded as marking a most important era in the history of this department of surgery.

In this connection the following very recent case appears to me sufficiently important and suggestive to give here in detail. Mrs. S. G., æt. 18, residing at Matamora, Ohio, was admitted to the University of Michigan Hospital April 18, 1888. She is of German extraction. Her father died in 1875 of acute consumption. During his early life in Germany he appeared to have been in hospitals for treatment of tumors on arm and shoulder. During latter years he suffered very much from rheumatism occasionally. Seven brothers and sisters died in childhood in Germany; cause of death unknown to the patient. The children born in America are healthy. Mrs. G. commenced to menstruate at 12 and has been regular since; was married in June, 1887. During the fall of 1886 she first felt a lump in the left breast, which was painful. The swelling was about the size of a walnut and was movable. It increased very much during the winter and she suffered from shooting pains, which were more acute at her menstrual periods. On examination by me the tumor was found to occupy nearly the whole of the gland. It was hard, nodulated, the nipple retracted, and, in short, presented every appearance of scirrhus. Moreover a dense mass of considerable size existed in the axilla. Had this patient been a woman over thirty years of age I should undoubtedly have recommended and performed amputation of the breast.

The resemblance between this breast and many which I have amputated for cancerous disease, and which have been proved by ulterior investigation to be malignant, was very striking indeed. The age of the patient was the only consideration which led me to entertain a hope that the prognosis might not after all be so grave, and that the tumor might be amenable to treatment by milder means; and I determined before doing anything else to make a fair trial of electrolysis with it. For that purpose I requested my assistant, Dr. George A. Hendricks, to take charge of the treatment, which he did on April 19. The applications were made with positive electrode over the growths and negative over the sternum, the positive electrode being a circular copper plate one and a half inches in diameter, covered with fine sponge, the negative electrode a copper plate two inches square, covered with sponge. When in use the sponges were wet with a strong solution of salt and before application the parts were well washed with alcohol. On April 19 nine cells, seven miliampéres, were applied for ten minutes; on the 20th, 38 cells, 30 miliampéres, for twelve minutes, applied over the tumor. Chloroform was given during these applications, as the patient could not tolerate them without anæsthesia. On April 21, 12 cells, 10 miliampéres, for ten minutes. On the same day the same application was made for the same length of

time over the axillary tumor. The negative pole making the skin of the chest sore, a larger one was made, of an oval shape, five by eight, covered with fine sponge. On April 22, 38 cells, 30 miliampéres were applied for ten minutes over the breast and for the same length of time over the axillary tumor. By this time the breast tumor was found to be reduced to a spherical nodule about the size of a walnut. Contraction of the nipple had to a great extent disappeared. On April 24, beginning with 9, increasing gradually to 24 cells, for twelve minutes on breast and axilla. On April 25, 26 and 27 the same application; on April 28, 30 cells; on April 29, 38 cells. After this the skin over the breast appeared somewhat irritated, but the tumor decidedly smaller. On April 30, 38 cells were applied over the breast and to the axilla. On May 3 the patient was menstruating, and the treatment stopped for the present; but the growth by this time in the breast and in the axilla had almost entirely disappeared] and the patient, considering herself cured, was most anxious to return to her home in Ohio, which she was permitted to do.

In chronic enlargement of the prostrate in old men I think I see in this direction a gleam of reasonable hope for a class of cases hitherto regarded as almost if not quite beyond remedy.

The value of electrolysis in the treatment of that common and important surgical condition knows an nævus or aneurism by anastomosis is a triumph of surgery which belongs to our own generation. Previous methods of treatment, namely, excision, caustics, ligature, injection of astringents into the structure, are all inferior in every respect to the method by electrolysis. I have used and have seen used every one of these different methods, and have no hesitation in giving the preference to electrolysis on the score of safety, efficiency and ease of application. I here present for inspection a few photographs illustrative of a large number of cases of nævus, treated successfully by electrolysis at my public clinic.

SURGICAL HÆMORRHAGE.

Our generation has witnessed substantial advances in regard to the management of surgical hæmorrhage. Its prevention during long and extensive operations by means of Esmarch's bandage is one of the most striking and important of these advances. No surgeon would now like to dispense with this simple but truly valuable appliance.

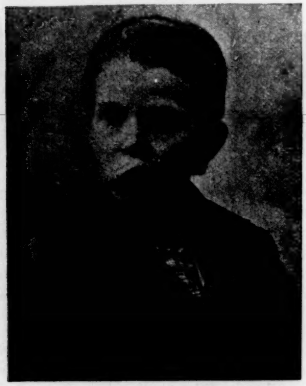
The aortic compressor, invented simultaneously by Pancoast and Lister, by which, with the utmost safety and certainty, the circulation through the lower half of the body may be absolutely controlled during pleasure, is another device in which, from actual experience in many urgent cases, I have come to have perfect confidence. I am fully persuaded that no danger of injury to the abdominal organs is involved in its use.

Catgut, and other animal ligatures, properly prepared, constitute another substantial improvement. The abandonment of all the so-called styptics, as the per-salts of iron, tannin, etc., except in very rare and peculiar cases, is another step in the right direction. They are dirty, irritating, and above all unreliable as hæmostatic agents. By means of acupressure Simpson and others claimed nearly if not quite as brilliant results in the healing of surgical wounds as the advocates of antiseptic surgery have since claimed for their methods. Now-a-days, however, acupressure, notwithstanding the strong theoretical arguments in its favor may almost be said to be a deadi ssue.

In regard to that interesting affection, aneurism, the revival of the old operation of Antyllus in certain suitable cases, and the restricting of the Hunterian operation to a somewhat more limited field of usefulness, is a most striking and interesting improvement, for which the credit is mainly due to Prof. Syme. The achievements of this truly great surgeon in this department of surgery were sufficient to shed peculiar brilliancy over the closing years of his peculiarly brilliant career. I hope I may be pardoned for suggesting in this connection that when the enthusiastic devotee of "all antiseptic precautions" heralds forth to-day as an additional proof of the value of his method a successful case of ligature of an artery for aneurism, the remarkable fact should be remembered that Prof. Syme, whose career was practically closed before antiseptics were discovered, ligatured the femoral artery for aneurism fifty-eight times without a single failure. If there has been any corresponding record made since the introduction of those methods, I have not heard of it.

The recently promulgated view that an artery may be securely ligatured by a broad animal ligature, without rupture of any of its coats and without the formation and organization of the classical coagulum between the point of ligature and the first branch, if true, is undoubtedly the greatest discovery relative to the surgery of the arteries that has been made in our day. Such a revolutionary doctrine ought to be accepted cautiously and after careful observations *on the human subject.* I am able to contribute one or two facts in its favor from my own experience. Two years ago I was compelled to ligature the common femoral artery immediately below Poupart's ligament, for urgent hæmorrage, the result of ulceration of the artery in connection with an obscure abscess which originated in the interior of the pelvis. I used carefully prepared catgut ligature and with perfect success so far as the hæmorrhage was concerned. The patient, an old, worn out man, died some weeks afterward from a complication of diseases, but no trouble came from the ligature of this most dangerous of all the arteries. Unfortunately, no post mortem examination could be obtained in this interesting case.

Some months ago I was compeled to ligature the superficial femoral under circumstances of urgent emergency for secondary hæmorrhage from the popliteal artery, the result of a pistol shot injury inflicted some weeks before the case came into my hands. Extensive burrowing of pus all through the tissues of the thigh had occurred, and the patient was nearly exhausted from septicæmia, from which death ultimately resulted nine days after the operation of ligature of the femoral. On post-mortem examination



No. 1.—Before operation.

No. 2.—Before operation.

No. 3.—After operation.

No. 4.—Before operation.

No. 5.—After operation.

by the microscope the artery was found securely closed; the inner coats had not been divided and there was no trace of a clot.

These are not the only, though they are perhaps the most striking, cases in which I have been able to note the same state of affairs.

I venture to relate here the following recent case of a bloodless operation for traumatic aneurism, which seems to illustrate more than one of the points mentioned in connection with this subject:

F. S., æt. 19 years, son of a farmer, residing at Calkinsville, Isabella county, Michigan, was admitted to the University of Michigan Hospital at Ann Arbor on the morning of October 19, 1887. About two and one-half months previously he was boring a hole with a pocket knife through a strip of pine wood, when the wood, proving softer than he expected, the knife suddenly slipped through the wood and his clothes and penetrated the thigh, making an incision about three-quarters of an inch long obliquely outwards and downwards. The underlying artery was injured and dangerous hæmorrhage ensued, which was controlled by pressure. Upon admission to the hospital a considerable tumor was visible, occupying Scarpa's triangle, and over-lapping the lateral boundaries of that space. The aneurismal bruit could be heard with great distinctness all over the tumor, which, in short, presented all the characteristic symptoms of aneurism. The patient's father stated that the size of the tumor was rapidly increasing, but that the general health of the patient was good. Pulse, 116, temperature 99°. On October 20, in the presence of the medical class, Dr. T. J. Sullivan assisting me, he was placed under the influence of chloroform, the aortic compressor applied, an incision made about two inches in length over the surface of the tumor, the aneurismal sac exposed, and freely opened, and the coagulated contents evacuated. The compressor was then slightly relaxed, and the bleeding point by that means accurately determined. The artery was cautiously freed from its connections, and strong catgut ligatures applied above and below the point of wound and cut off short. In the primary incision two or three small vessels were divided, which were also ligated. No special antiseptic measures were used, other than perfect cleanliness. Suppuration was not altogether prevented. The highest temperature was reached on the second day after the operation, when the thermometer under the tongue reached 103°. After this the temperature fell below 100°, and at no time afterward exceeded that point. The case progressed favorably, and the patient was discharged cured on the 1st day of November, that is to say, just eleven days after the operation, and he has continued well to the present time. The ligatures which were applied to the femoral artery were never heard from in any way.

In contrast with the case just related, I desire to refer briefly to a case of traumatic aneurism of the common femoral artery, reported by myself in the *New York Medical Record*, for Jan. 4, 1882. In that case the wound was produced by a pistol shot, and was situated immediately below Poupart's ligament. The patient was a boy, æt. 14. The accident happened on April 28, and on October 10, of the same year I performed the Hunterian operation, placing a carefully prepared catgut ligature upon the external iliac artery. Had there been a reasonable hope of the wound being in the superficial femoral as in the previous case, I should have performed the old operation; or had the external wound been unhealed or in any danger of opening up again, I should have felt compelled to treat the case as a wounded artery, and applied a ligature on the affected vessel above and below the wound. As it was, the situation of the scar excluded all hope of the superficial femoral being the wounded vessel. In the next place, the external parts were as perfectly healed as if they had never been injured, and the aneurism being comparatively small and well defined, although in reality, a false aneurism caused by an external wound had come to correspond very closely to a true aneurism, at least in so far as the question of treatment was concerned, so that the Hunterian operation seemed the best, and indeed, at that time, the only alternative. October 31, that is twenty-one days from the date of the operation, this patient was dismissed cured. In a similar case to-day, it would be at least justifiable to take into consideration the propriety of substituting the old operation for the Hunterian, as in the case of aneurism affecting the superficial femoral which has been described in a preceding paragraph of this paper.

DISEASES OF THE JOINTS.

The treatment of diseased joints has made solid and satisfactory progress in recent times. Those intractable cases, to the pathology of which Sir Astley Cooper, Sir Benjamin Brodie, and others, devoted so much attention, and which they so unsuccessfully endeavored to cure by different forms of counter-irritation and constitutional treatment, are now successfully managed by physiological rest, pressure, extension, and counter-extension, and especially by the operation of resection or partial resection. My own observation and experience have convinced me that this last method of treatment, that is, resection or partial resection, has a much larger field of usefulness, especially as regards the hip and knee, than has hitherto been generally believed. A mistake is in my judgment, often made in postponing the performance of this operation until the disease has extended far beyond the limits of the articulation, and the case has become hopeless by any means other than amputation. So soon as a case of articular disease refuses to yield to a fair trial by the milder methods, the duty of the surgeon, in my opinion, is *to open the joint and remove all of the diseased tissue.* By this course the danger to the life and the limb of the patient is reduced to a minimum, and the duration of the treatment materially abbreviated.

In certain cases of congenital or acquired deformity of joints, beautiful results are possible by resection, as well as by subcutaneous osteotomy. For example, on March 15 last, a young man, F. McM., æt. 16 years, came to my public clinic on account of a very peculiar deformity on his left knee joint, which had the following history:

The patient had malarial fever five years ago, which lasted for four or five months. During convalescence, when attempting to walk, he noticed a weakness in his left knee, which appeared to bend beneath his weight. This weakness increased steadily, and seven months before admission it became much aggravated. No medical advice until six month's ago, when a doctor advised him to wear a splint for support, which he has since done. The tendency to luxation, however, continued to increase up to the time of admission when it was found to constitute a very unsightly deformity, and to almost entirely deprive the patient of the use of his limb. In walking there was a plainly apparent subluxation of the head of the tibia outwards, so that the leg formed an angle of about 120 degrees at the knee-joint. On March 22, he was presented at the clinic, placed under the influence of chloroform, and the ordinary operation of resection of the knee-joint performed, a slice being removed from the articular surfaces of the femur and tibia, with the saw. The bones were extremely vascular, but the hæmorrhage was speedily arrested by the application of hot water. The osseous surfaces and the edges of the wound were coaptated and secured with four silver wire sutures through the soft textures, down to but not including the bones. The wound was covered with iodoform gauze, and supported with splints composed of folded newspapers well covered with cotton batting maintained by bandages. Nine drachms of chloroform were used.

On April 23, he was presented to the clinic. The wound at that time had not been dressed for four days; but very little suppuration had taken place. The union between the bones was solid so that the limb could be lifted bodily by taking hold of the heel. On April 24, a light plaster cast was applied by Dr. Hendricks, and the patient walked into the clinical amphitheatre on his crutches, and was able to lean considerable weight on the affected limb. He was then dismissed from the hospital, *five weeks from the day of operation.*

In the treatment of the early stages of articular disease affecting the joints named, and especially the elbow and the knee, the plaster of Paris cast is, in my opinion, a useful appliance, but it requires much cautious judgment and careful observation in its management.

In any case of articular disease when the degeneration of tissue has extended, as it sooner or later does unless arrested by efficient treatment, beyond the limits of the articulation, inducing destruction of the medullary canal and other parts of the bones involved, the only efficacious treatment is amputation, and under these circumstances I have in several instances successfully performed amputation even at the hip-joint. One case in point, I had the honor to report to this Section, illustrated by a very striking specimen, at the annual meeting two years ago at St. Louis.

TREATMENT OF FRACTURES.

This is a department of surgery that has always had, for obvious reasons, a peculiar interest for the practical surgeon; and in our generation, as in previous ones, much activity has been displayed, and much ingenuity exercised in efforts to improve methods and appliances for the management of these common and important surgical cases. It would take a long time, and be a tedious and unprofitable task to describe, discuss or even enumerate the many suggestions and inventions which have engaged the attention of surgeons during the memory of those listening to me. I will only take time to notice a very few of those which appear to me to be the most worthy of consideration here.

The first of these is the improved and simplified methods of securing efficient, continuous extension, and counter-extension in the treatment of fractures, especially of the thigh, the most difficult and hazardous of all fractures so far as the surgeon's reputation is concerned. The method known by the name of its inventor, Gurdon Buck, has attained to such universal acceptance that now it may be said to have no competitor for professional favor.

The abandonment of all complicated and mysterious machinery, and the substitution of the simplest forms of material, such as pasteboard, leather, and so forth, as coaptation splints, is another striking fact in the history of this department of surgery in our day. My own favorite splint for these purposes consists of folded newspapers surrounded by one or more sheets of cotton wadding. This constitutes a simple, cheap, light, safe, efficient and easily applied apparatus. I use it not only in the treatment of fractures of the long bones, but in the treatment of resections of the joints, and have every reason to feel entirely satisfied with it, and many of my former pupils have testified to its merits as a practical appliance.

The use of plaster of Paris as a dressing in fractures, notwithstanding the eloquent claims made for it some years ago, in certain high quarters, has now, I think, reached its proper position in the estimation of the profession. It is a suitable method of treatment *for a few fractures, under certain exceptional circumstances, but its field of usefulness is, in my opinion extremely limited.*

The treatment of Colles' fracture without any splints at all, and regarding the concomitant sprain of the wrist-joint, and the danger of adhesions and contraction of tendons as the chief indication after the fracture is once reduced, carefully eschewing immobilization (*which is improper in sprains everywhere*), according to the teachings of Bouchet, E. M. Moore, Le Comte, Gordon, Pilcher and others, I have had numerous opportunities of testing, and have had the pleasure of placing on record some of the results of my experience, which have been eminently satisfactory in every case in which I have tried it. Instead of regarding Colles' fracture with fear and trembling, as used to be the common feeling toward it on the part of surgeons, it may now, with our better understanding of its pathology and our improved methods of treatment be regarded as among the safest and most satisfactory of all fractures. And in this connection I may refer briefly to a comparatively new and very important principle of

practice as regards all fractures in the neighborhood of joints, namely, the cautious, efficient measures now adopted by the aid of anæsthetics, when necessary, to prevent anchylosis, and contraction of fibrous structures by the use of *passive movements*, cautiously applied to the articulation during the course of treatment of the fracture. The treatment of fractures of the humerus, when non-union seems to threaten, by placing the forearm in the straight instead of the rectangular position, on the principle laid down by the late Dr. Frank Hamilton, I feel bound to approve after some very satisfactory experience therewith. The main argument in favor of the rectangular position namely, the danger of anchylosis in the worst position, no longer holds good, since by the maintenance of judicious passive movements, this contingency is fully provided for.

In regard to the treatment of non-union of fractures, there are only three observations which it seems necessary for me to mention here. The *first* of these relates to the cause of non-union, about which great uncertainty has always existed in the minds of the profession. For some years past it has been my fortune to receive, at my public clinic in the University of Michigan, many cases of ununited fracture, mostly from the lumber camps and mining districts of the northern part of the State, and I have been struck with the fact that, in every instance, the fracture has been produced by direct and very great violence; so that it has seemed to me a reasonable explanation of this unfortunate accident that the violence of the injury, affecting injuriously the vital powers of the tissues involved, is responsible for the disastrous failure of the reparative efforts of nature.

In the *second* place, I have come to believe that it is possible for the surgeon to determine by actual examination whether or not there is any reasonable chance for union to be induced in any given case of this kind. If, on examination, the medullary canal is found enlarged, the cortical substance proportionately thin, the bone and neighboring tissues generally having undergone fatty degeneration, no operation and no method of treatment will, in my opinion, succeed in inducing union.

In the *third* place, experience has led me to discard entirely the expedient of wiring the ends of bone after the operation of resection for non-union. I am convinced that it does not improve the chances for union, and I have in cases of my own and of other surgeons frequently had occasion, months or years afterward, to operate for the removal of silver ligatures which had become a serious source of annoyance and danger to the patient. Within a few months I have performed resection of the femur for non-union in two extremely bad cases, and in an equally bad case in the lower jaw where the fracture was compound and comminuted, and in all three the result was complete success although no silver ligatures nor appliances of that kind were used. The fractures of the femur were treated simply as any ordinary case of compound fracture of that bone would be treated, namely: by newspaper coaptation splints, a modification of Liston's long splint, and Buck's extension and counter-extension apparatus by weight and pulley. In none of these cases were any germicides or antiseptics used, although a strong effort in the direction of perfect surgical cleanliness was made, and in all the wounds healed rapidly and with very little irritation.

STONE IN THE BLADDER.

In regard to operations for the removal of urinary calculi great activity has prevailed and decided progress has been made in very recent times. If former generations were moved with admiration by the brilliant operations performed and the large ratio of successful results obtained by Cheselden, Liston, Dudley and others, our own generation has noted with at least equal gratification the practical results which have flowed from the persistent efforts and the wonderful scientific ingenuity of men like Thompson, Bigelow, Otis, Gouley and others, whereby it has been attempted to substitute for lithotomy safer and less formidable procedures.

The operation of lithotrity and the instruments by which it is effected, have been most completely revolutionized, and I think we may almost say perfected, under our own eyes, while litholopaxy, or the operation of Bigelow, constitutes one of the many valuable additions to the long catalogue of surgical procedures rendered possible by the aid of anæsthesia. So successful have these methods been in the hands of their inventors and others, and so ingenious and plausible the arguments urged in their favor, that there has seemed to me to be some danger of their being too universally resorted to, to the exclusion of the time-honored operation of lithotomy. Recent utterances, however, such as those of Mr. Reginald Harrison, of England, encourage the hope that moderate and reasonable views will ultimately prevail, and that full justice will be done to *all* of the procedures in question. For my own part I have always believed and taught that, while lithotrity and litholopaxy are valuable methods of getting rid of stone in the bladder, still there are substantial advantages in lithotomy which will always make it the best operation in a large and important class of cases. Mr. Harrison, in the article referred to (The London *Lancet*, February 4, 1888) says:

"Mr. Cadge, in his recent Hunterian lectures, pointed out that the recurrences of stone after lithotrity are lamentably frequent; and if there were added to the list those numerous cases of phosphatic deposit or concretions so often noticed after this operation, the relapses, he believed, would reach nearly 20 per cent. The state of the interior of the bladder, relative to its shape, its power of contraction and the presence or absence of inflammation, has a determining influence in the reproduction of stone, and we have, I think, been rather too much disposed to allow the physical properties of the stone to determine for us, as it were, the selection of the operation, irrespective of these relative conditions. Though a hard stone is, as a rule, best treated by lithotomy, this by no means implies that some small and soft ones are the less advantageously removed by the same proceeding. Let me take, for instance, the case of a stone in the bladder occurring in an adult, with some chronic cystitis and enlargement of the

prostate. The probabilities are that for many months, if we look at a section of such a stone after its removal, the bladder has been engaged in encasing it in a mould of phosphates just as completely as if it were done by plaster of Paris. I have examined a very large number of bladders with prostatic hypertrophy and, having regard to the pouched condition of the viscus as well as the condition of the mucous membrane, relative to the presence or absence of phosphatic deposit upon it, it has often struck me not that lithotrity has its failures, but that, under these circumstances, its successes are so numerous.

"Reflections such as these induced me, some years ago, to greatly alter my mode of procedure in cases of this kind, where either it was clear that the stone was the effect rather than the cause of disease, or where this fact was demonstrated by the failure of lithotrity. The bladder, under these circumstances, resembles a chronic abscess with a stone in it, and it is just as necessary to open and drain the one as the other. In a man of 60, from whom large masses of phosphatic stone had been removed by three lithotrities, and who was never free from vesical irritation, I performed, two years after the first crushing, lateral lithotomy, and removed more phosphatic calculus of recent formation. His bladder was then drained and washed for eight weeks, until he voided normal acid urine, when the tube was removed and the wound healed in a month. This and similar instances are examples not merely of successful lithotomy, but of successful drainage. In the performance of lithotomy in cases of this description my aim is to make a wound into the bladder which will permit of very ready and efficient drainage, and which is not likely to close up before the interior of the viscus is ready for the reception and continence of the urine. Hence I am an advocate for lateral lithotomy, which best fulfils the conditions that are required. As a rule, cases of this kind require drainage to be continued from four to eight weeks, and I have drained them as long as ten weeks before the state of the bladder, as evidenced by the urine, was such as to allow the wound to heal up. . . . . From a gentleman of 70, who for four years had passed his urine by catheter, I removed by lateral lithotomy three uric acid calculi of moderate size, coated with phosphates. I made a very free opening into the neck of the bladder, put in one of my largest-sized tubes and drained continuously for eight weeks, when the wound was allowed to heal. He can now expel his urine without assistance and has entirely discarded the catheter. It is remarkable that the bladder should have entirely recovered its power after so long a period of inaction as four years."

I have made this lengthy quotation from Mr. Harrison's lectures because it expresses very distinctly the views that have guided my own practice, and which I have been accustomed to teach for many years; and the following remarkable case from my own experience seems to me to furnish a strong argument in their support. In November, 1883, I was asked by Dr. Bennett to see a patient in the Wayne county house, who was suffering from stone in the bladder among other things. The history of the case was briefly as follows: Five years previously, the patient had fallen from a building and injured his spine, causing complete paraplegia, with incontinence of urine. I found him confined to bed, suffering great pain from the presence of two very large stones in his bladder, and from all the disagreeable effects of complete incontinence of urine in a paralyzed man, including bedsores. I administered chloroform, removed the stones from his bladder by the left lateral operation, made provisions for thorough drainage and washing out of the bladder; and not only did the wound heal when permitted to do so but, when this took place, it was found, to the surprise of all, *that the patient had recovered complete control over his urine, which he retains to the present time.* The calculi were phosphatic and comparatively soft, so that they might easily enough have been removed by lithotrity or litholopaxy. But will anyone say that either of these procedures could possibly have accomplished so great and beneficent a result for him as the operation which I performed did?

A good deal has been said in recent times in favor of the supra pubic or high operation of lithotomy; and no doubt there is an important field of usefulness for this method of opening the bladder. Still, I cannot believe that the advantages are sufficiently great to justify us in preferring it to the old operation of lateral lithotomy. On this subject also I think Mr. Harrison, in the lecture from which I have already quoted, has expressed himself in wise and conservative terms. Among other things he says:

"We must not be unmindful that experience has already shown us that supra-pubic cystotomy, like other procedures having the same object, has its own difficulties and dangers. Instances have been recorded where a weakened bladder under the pressure of distension has given way and death has then followed; and similarly the rectum has suffered in a corresponding manner, but without producing any serious consequences. To most of us the simplicity and ease with which lateral lithotomy can usually be performed is such as to strongly prejudice us in its favor in its absence of any special reason to the contrary such as I have indicated. Still, on the other hand, there are places for both the high and low operations in the practice of surgery which they can fill with relative advantage, and without fear of clashing."

The operation of cystotomy by the left lateral method, for chronic cystitis and chronic irritable bladder is one which I have practiced with most gratifying results in numerous cases, some of which are so striking in character that I would like to detail them here, but time does not permit.

One point of great practical importance in this connection must, however, be noted, namely the fact, long since pointed out by Sir Benjamin Brodie, that certain cases of chronic cystitis and chronic irritable bladder are associated with and dependent upon suppurating kidneys; and of course these cases should be carefully diagonized and excluded from the class amenable to operation.

The undue length to which this paper has already extended compels me to omit all consideration of the

important fields of brain and thoracic surgery, in which, of late years, such brilliant results have been obtained, and in which there is strong promise of still greater progress in the near future.

Nor are these by any means the only subjects which the rapid flight of time warns me to omit the consideration of here, notwithstanding their great practical importance and their tendency to show forth the progressive nature of the surgery of our day. But here my discourse, fragmentary and incomplete as it unquestionably is, must stop. If the effect of anything that I have said should be to convey a favorable impression of the present condition and prospects of our beloved art, and to inspire even in the slightest degree hope and courage in the minds of those who, like myself, are struggling to promote and elevate its beneficent powers, I will be more than satisfied. In any event, I must always feel deeply sensible of the honorable trust reposed in me by my brethren of this section, and my highest ambition will ever be to prove myself in some degree at least worthy of the great honor conferred upon me. Certainly I know not any higher privilege or purer pleasure than that of contributing even in the least degree to the assistance, the gratification or the encouragement of the noble army of those who have enlisted for life in the arduous and beneficent service of surgery.

"Men my brothers, men the workers, ever reaping something new,
That which they have done, but earnest of the things that they shall do."

RECTAL INSUFFLATION OF HYDROGEN GAS AN INFALLIBLE TEST IN THE DIAGNOSIS OF VISCERAL INJURY OF THE GASTRO-INTESTINAL CANAL IN PENETRATING WOUNDS OF THE ABDOMEN.

Read in the Section on Surgery, at the Thirty-ninth Annual Meeting of the American Medical Association, May, 9, 1888, and illustrated by three experiments on dogs.

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(*Concluded from page 777.*)

IV.—HYDROGEN GAS IS INNOCUOUS AND NON-IRRITATING WHEN BROUGHT IN CONTACT WITH LIVING TISSUES AND IS PROMPTLY REMOVED BY ABSORPTION.

a.—Peritoneal Cavity.

Experiment 53.—Dog, weight 45 lbs. A circumscribed spot to the right of the linea alba was shaved and thoroughly disinfected and through this space a well disinfected medium sized trocar was plunged into the peritoneal cavity. To the cannula of the trocar the rubber tube of the inflation balloon charged with hydrogen gas was attached and the whole peritoneal cavity filled with gas by compressing the balloon. About four litres of gas were injected. No gas escaped upon the withdrawal of the cannula and the puncture was sealed with cotton and iodoform collodium. The animal appeared to suffer but little pain, and the next day the tympanitis had disappeared and the dog was as frisky and lively as before the inflation. Two days after the experiment was made the dog was killed and the peritoneal cavity carefully examined. Not a trace of the gas remained and the peritoneum throughout presented a normal appearance.

b.—Pleural Cavity.

Experiment 54.—Dog, weight 25 lbs. After thorough disinfection an aseptic hollow needle was inserted between the seventh and eighth ribs in the axillary line into the left pleural cavity and hydrogen gas from rubber balloon forced through it until the pleural cavity was thoroughly distended. On making a physical examination of the chest at this time the apex of the heart was found to the right of the sternum; vesicular breathing on left side absent, and on percussion of this side abnormal resonance. The respirations became superficial and greatly increased in frequency. On withdrawing the needle no gas escaped externally, but a circumscribed subcutaneous emphysema which appeared showed that some of the gas escaped through the puncture in the pleura into the subcutaneous connective tissue. Twenty-four hours after the inflation the dog appeared to be in perfect health. The normal relations in the chest had become restored and the subcutaneous emphysema was less extensive. The animal was kept under observation for a considerable length of time, but at no time could symptoms of pleuritis be detected.

c.—Subcutaneous Cellular Tissue.

Experiment 55.—Old dog, weight 43 lbs. A small perfectly aseptic trocar was inserted through the skin into the loose cellular tissue in the right inguinal region and through the cannula two litres of gas were injected, the gas distributing itself through the loose connective tissue over a large surface of the body. Upon the withdrawal of the cannula the puncture was hermetically sealed with iodoform collodium and cotton. The subcutaneous emphysema disappeared completely in forty-eight hours, and no traces of inflammation could be found at the point of punture, or at any place where the gas had come in contact with the tissues.

Experiment 56.—Dog, weight 25 lbs. Subcutaneous inflation of two litres of hydrogen gas through the cannula of a small trocar into the left side of the chest. The subcutaneous emphysema reached from the clavicle and axilla on that side to the crest of the ilium, the gas at some points elevating the skin at least four inches from the subjacent tissues. The gas was absorbed somewhat more slowly than in the preceding experiment, but three days after the inflation no trace of emphysema could be detected and the subcutaneous connective tissue was as pliable and movable as before the inflation.

V.—RECTAL INSUFFLATION OF HYDROGEN GAS IN THE DIAGNOSIS OF PENETRATING GUNSHOT WOUNDS OF THE ABDOMEN.

In these experiments the animals were strapped on one of Pasteur's operating tables. Abdomen shaved, and after complete etherization the shooting

was done at short range with a thirty-two calibre revolver. Inflation of hydrogen gas was practiced immediately after the shot was fired, and after its diagnostic value was carefully studied the abdomen was opened and its contents examined for visceral injuries. In all cases where the colon was perforated in flation could be done under very slight pressure, as the gas readily escaped into the peritoneal cavity, and from there through the bullet wound in the abdominal wall, where it was ignited as it escaped. As it is not the object of this paper to give the result of the operative treatment, the experiments will only be described in reference to diagnosis as verified by abdominal section, but in every case an attempt was made to save the life of the animal by operative treatment, and in a few instances the efforts were rewarded by success.

Experiment 57.—Dog, weight 30 lbs. The abdomen was opened by an incision through the linea alba and a coil of the small intestine was drawn forward into the wound, and an incision one-half an inch (12 mm.) in length was made on the convex side and the intestine returned. A small glass tube was inserted into lower angle of wound, and the rest of the wound closed by sutures. About two litres of hydrogen gas were inflated per rectum when the gas escaped through the glass-tube, and when ignited burned with a continuous steady blue flame as long as the inflation was continued. The wound was opened and a small quantity of gas was found in the peritoneal cavity. The whole intestinal tract below the visceral wound was found moderately distended by gas, while above the wound the intestine was normal in size.

Experiment 58.—Dog, weight 15 lbs. When the dog was completely under the influence of ether hydrogen gas was forced from anus to mouth, and while the abdomen was still moderately distended the animal was shot in the abdomen, the bullet being directed transversely from the point of entrance on the side of the abdomen two inches (5 cm.) to the right of the median line and on a level with the umbilicus. On applying a lighted taper to wound of entrance, and compressing the abdomen, hydrogen gas escaped and was ignited. When the inflation was resumed the gas burned with a continuous flame at the wound of entrance. The abdomen was then opened and two perforations in the stomach were found, one on the anterior surface near the pylorus, and the other on posterior surface at the cardiac extremity, about an inch above the omental attachment. The distension of the stomach by hydrogen gas had brought this organ within range of the track of the bullet.

Experiment 59.—Dog, weight 20 pounds. Under complete anæsthesia the animal was shot in the abdomen, the bullet taking the same direction as in the previous experiment, only that the track was about an inch (2.6 cm.) above the umbilicus. Immediately after the shooting hydrogen gas was inflated per rectum, and its presence in the abdominal cavity became evident by a marked tympanitis, absence of liver dulness, and later by a localized emphysema around the wound of entrance. As the pressure was continued bubbles of gas escaped, and on applying a lighted taper, ignited with a feeble explosive report. The abdomen was opened, and the stomach showed two perforations, one just above the omental attachment near the pylorus, and the other on the same level at the cardiac extremity. Little hæmorrhage, and no extravasation of contents of stomach.

Experiment 60.- -Dog, weight 30 pounds. Animal anæsthetized and shot in abdomen at a range of two feet; wound of entrance two inches to the right of, and on a level with, the umbilicus. Wound of exit one inch above the middle of left crest of ilium. Inflation of hydrogen gas per rectum soon caused extensive tympanitis, and as but little force had been used the conclusion was drawn that some part of the descending colon had been injured. As the gas did not readily escape through the bullet wounds a small cannula was inserted into the abdominal cavity through the wound of entrance, when the gas escaped freely and was ignited. On opening the abdomen examination revealed the following visceral injuries: Two perforations in the descending colon, four in the ileum, within a distance of ten inches of the ileo-cæcal valve, eight in the upper part of the ileum within the space of one foot (30 cm.) of the intestine. The mesentery was perforated at three points, and a number of mesenteric vessels of considerable size were severed, which gave rise to profuse hæmorrhage.

Experiment 61.—Large coach dog. The animal was completely etherized and shot in the abdomen at close range. Wound of entrance midway between linea alba and vertebral column on left side, a little below the level of the umbilicus; wound of exit close to last lumbar vertebra over crest of ilium on opposite side. Rectal inflation of hydrogen gas under slight pressure at once produced diffuse tympanitis, and the gas escaped freely through wound of entrance where it was ignited and burned with a large steady blue flame as long as the inflation was continued. On opening the abdomen gas escaped, but inspection showed that the small intestines contained no gas, a condition which pointed to the colon as the seat of perforation. One perforation was found in the anterior wall of the sigmoid flexure and two perforations in the cæcum. In the small intestines two perforations were found in the ileum near the cæcum, and three in the upper portion of the jejunum. Among the other organs injured were the spleen, the receptaculum chyli, and a number of perforations in the mesentery.

Experiment 62.— Large dog, profound ether narcosis. Shot in the abdomen, the bullet entering on a level with the umbilicus and about one inch to the left of the median line. Point of exit two inches from spinal column, and a little above the lower border of the chest. On inflating the rectum with hydrogen gas hardly any force was required to distend the abdomen, and for this reason it was believed that the colon in some part of its course had been injured. Gas escaped readily through the wound of entrance where it was lighted and burned with the characteristic blue flame. The abdomen when opened was found almost completely filled with

blood. The source of this profuse hæmorrhage was the right kidney which showed a perforation through the centre. An examination of the gastro-intestinal canal revealed two perforations of the cæcum, and five of the small intestines. After passing through the kidney the bullet perforated the diaphragm, traversed the pleural cavity and escaped through the chest wall two inches (5 cm.) to the right of the spine.

Experiment 63.—Old dog, weight 35 pounds. Thoroughly etherized and shot in the abdomen, the bullet entering three inches (7.4 cm.) to the right of, and an inch and a half (3 cm.) below, the umbilicus, passing almost transversely through the abdominal cavity it escaped at a corresponding point on left side. Inflation of hydrogen gas was attempted, but failed on account of the apparatus being out of order. The abdomen was opened and no gas was found even in the colon. Twelve perforations of the small intestines were found, and a number of perforations of the mesentery which had caused profuse hæmorrhage.

Experiment 64.—Large, black dog. Etherized and shot in the abdomen, wound of entrance three inches (7.4 cm.) to the right of, and an inch and a half below, the umbilicus; wound of exit near a corresponding point on opposite side, the bullet taking nearly a transverse course. Rectal inflation of hydrogen gas gave a prompt positive result. The abdomen was opened and five perforations of small intestine were found, besides laceration of thoracic duct, and a number of perforations in mesentery. Colon and small intestine below the lowest point of perforation contained gas, while above the lowest perforation the bowel contained no gas.

Experiment 65.—Dog, weight 25 pounds. Under full anæsthesia the animal was shot in the abdomen, the bullet passing nearly in a transverse direction through the abdominal cavity an inch and a half below the umbilicus from points of entrance and exit midway between linea alba and spine. Rectal insufflation of hydrogen gas made under very low pressure led to rapid distension of the abdomen, an occurrence which furnished strong evidence that the gas had escaped through a perforation in the colon into the peritoneal cavity. The gas escaped in bubbles through the wound of entrance, and when a lighted taper was held near the wound it burned with a jet varying in size. On opening the abdomen gas escaped from the peritoneal cavity, small intestines empty, and only a small amount of gas in the colon. The following intra peritoneal injuries were found: Four perforations of the duodenum, two of the jejunum, and one of the cæcum also a perforation nearly through the centre of the left kidney, laceration of the receptaculum chyli, and a number of perforations in the mesentery. The bullet was found between the left kidney and the abdominal wall.

In all of these experiments the bullet was fired through the abdomen from side to side transversely, or somewhat obliquely, directions which invariably brought into the track of the bullet a number of intestinal coils, and often the colon likewise. In the two experiments where the track of the bullet was a little higher up the intestines escaped, but the stomach showed two perforations, one near the pyloric, and the other near the cardiac extremity. Rectal insufflation of hydrogen gas proved an infallible test in every instance, except in the case where it failed on account of the inflation apparatus being out of order. Contrary to the experience of other experimenters, I found that fæcal extravasation does not uniformly take place soon after gunshot wounds of the intestines, and in the cases where I observed it some part of the colon had been wounded. Intestinal inflation does, therefore, not tend to increase the frequency of this occurrence, and must therefore be looked upon as a harmless measure in this direction.

Inflation, as a preliminary measure, greatly expediates the first step in the operation of abdominal section in cases where the intestine has been perforated or injured, as the gas which escapes into the peritoneal cavity separates the intestines from the anterior abdominal wall, and the incision can be made safely and rapidly without fear of wounding the intestines. Penetrating wounds of the abdomen, where the course of the bullet is in an opposite direction to that which has been described in the preceding experiments, that is in an antero-posterior direction, may not implicate the intestines at all, or if visceral injury is inflicted, it is more likely that only a single perforation exists, and never does the surgeon meet with such a multiplicity of lesions as have been cited above. Unless the surgeon can ascertain before hand that in a case of penetrating wound of the abdomen an injury to some portion of the gastro-intestinal canal exists, the very means which he resorts to in making an anatomical diagnosis is often an imminent source of danger, as only too often he may have to examine every inch of the gastro-intestinal canal for this purpose, a procedure which is always attended by great risk to life. If by such a simple and harmless procedure as insufflation of hydrogen gas he can satisfy himself that the gastro-intestinal canal is perforated, the course to pursue becomes clear—to open the abdomen, *seek for the perforation until he finds it*, and to adopt proper treatment for the visceral injury.

Cases have also happened in which the operator opened the abdomen, sought for, found and treated one or more perforations, and on making the autopsy a day or two later found, to his great chagrin and sorrow, a perforation which he had overlooked at the time of operation. It seems to me that in cases in which any doubt exists as to the integrity of the remaining portion of the intestinal canal, after closing one or more perforations, it would be advisable to search for additional perforations by resorting again to slow and careful inflation before the abdominal wound is closed. If no other perforations exist the gas will be confined to the interior of the gastro-intestinal canal, and if the stomach or intestines at some point difficult of access are injured, the leakage of gas through the perforations will lead the surgeon to the wound.

In the practical application of rectal insufflation of hydrogen gas, as a means of diagnosis in pene-

trating wounds of the abdomen, the field of possible operation should be carefully prepared by shaving and disinfection before inflation. After thorough disinfection of the external wound or wounds, and the field of operation, the patient should be placed thoroughly under the influence of an anæsthetic for the purpose of relaxing the abdominal muscles, which greatly facilitates the inflation. In the absence of a Wolf's bottle hydrogen gas can be readily generated in a large wide-mouthed bottle into which a small handful of chips of pure zinc is placed. The mouth of the bottle is closed with a cork with two perforations, through which two glass tubes are inserted, one for the purpose of pouring in water and sulphuric acid, and the other, which should be bent nearly at right angles, for leading away the gas. This glass tube and the rubber balloon with a capacity of 16 litres of gas are connected by means of a rubber tube. In from five to ten minutes the requisite amount of gas can be generated and everything is ready for the inflation. The rubber tube connecting the balloon with the rectal tip of an ordinary syringe should be interrupted by a stop-cock, so that the escape of gas can be prevented whenever inflation is temporarily suspended. The return of gas along the sides of the rectal tip can be readily prevented by an assistant pressing the anal margins firmly against it. The inflation must always be made *slowly*, as *long continued, uninterrupted pressure accomplishes most effectually lateral and longitudinal dilatation of the cæcum*, conditions which render the ileo-cæcal valve incompetent, and which must be secured before inflation of the small intestines is possible. The entrance of gas from colon into the ileum is always attended by a diminution of pressure, and its occurrence can invariably be recognized by a gurgling or blowing sound over the ileo-cæcal valve, and sometimes the sounds are sufficiently loud to be heard at some distance.

If, after inflation, abdominal distension and tympanitis be from the very first diffuse, and liver dulness has disappeared, it is a certain indication that it is due to the presence of gas in the peritoneal cavity, and not to distension of the gastro-intestinal canal. If, on the other hand, the distension and tympanitis follow the course of the colon, and after the entrance of the gas through the ileo-cæcal valve is circumscribed and limited to the umbilical and hypogastric regions, and gradually extends to the upper portion of the abdomen, *and the liver dulness is displaced upwards*, it is in all probability caused by a gradual and successive inflation of the intact bowel in an upward direction. In some penetrating wounds of the abdomen it is difficult, if not impossible, to follow the course of the bullet through the abdominal wall with a probe or finger on account of a relative change of position of the different layers of tissues in the track of the bullet obliterating the canal, but even in these cases a moderate distension of the peritoneal cavity by an accumulation of gas outside of the intestines will force bubbles of gas through the tortuous canal, and by this sign the surgeon may know positively that some portion of the gastro intestinal canal has been perforated, and in order to prove that the bubbles which escape are part of the hydrogen gas which has been inflated he applies a lighted match or taper, and if it is hydrogen gas it will ignite with a slight explosive report, and burn with a characteristic blue flame. The burning of the escaping hydrogen gas on the surface of the external wound is a most effective means in securing for the wound an aseptic condition, and on that account the escaping gas should be lighted both for diagnostic and therapeutic purposes in all cases in which rectal insufflation of hydrogen gas reveals the presence of visceral injuries of the gastro-intestinal canal.

As the hydrogen gas from its low specific gravity will always occupy the highest space in a cavity partially filled with fluids, it is necessary to place the external abdominal wound in such a position that blood or any other fluid that may be present in the abdominal cavity will not interfere with its ready escape. If the wound is anterior the patient must be placed in dorsal position; if lateral, on the opposite side during the inflation. If during inflation early and diffuse tympanitis takes place, it speaks in favor of perforation of the colon.

Should the external wound prevent the escape of gas from the peritoneal cavity by sliding of the different layers of tissue of the wound in the abdominal wall, or by the presence of a coagulum in the track made by the bullet, it becomes necessary to secure a sufficient degree of patency of the wound for the escape of gas by careful probing or the removal of coagulated blood. The finding of perforations is also greatly facilitated by inflation, as the bowel below the lowest perforation will always be found at least slightly dilated by gas. If this perforation is now closed and additional perforations are suspected to exist the inflation can be repeated, and the bowel will again become distended as far as the next perforation, and this process can be repeated until the entire intestinal canal has been examined by this method. By searching for leaking points in this manner but little manipulation of the intestines becomes necessary, and thus one of the great sources of danger in the operative treatment of wounds or perforations of the gastro-intestinal canal is avoided. The moderate distension of the intestines left after treating the visceral wounds never interfered with the return of the intestines into the abdominal cavity or the closure of the external wound in any of the experiments, and the numerous observations made in reference to the disappearance of the gas by absorption, or escape through the natural outlets, are conclusive in showing that the distension due to the presence of the gas disappears in a remarkably short time, and it can therefore be safely stated that rectal insufflation of hydrogen gas in the diagnosis and treatment of penetrating wounds of the abdomen does not interfere with an *ideal* healing of the visceral and laparotomy wounds. After a careful study of the subject of rectal insufflation of hydrogen gas in its various aspects, I do not hesitate to recommend its adoption in practice as an infallible diagnostic test in demonstrating the existence of a wound of the gastro-intestinal canal in penetrating wounds of the abdomen or perforations from any other cause, with-

out resorting to an exploratory laparotomy. In conclusion I beg leave to submit for your discussion the following propositions:

1. The entire alimentary canal is permeable to rectal insufflation of air or gas.

2. Inflation of the entire alimentary canal from above downwards through a stomach tube seldom succeeds, and should therefore only be resorted to in demonstrating the presence of a perforation or wound of the stomach, and for locating other lesions in the organ or its immediate vicinity.

3. The ileo-cæcal valve is rendered incompetent, and permeable by rectal insufflation of air or gas under a pressure varying from one-fourth of a pound to two pounds.

4. Air or gas can be forced through the whole alimentary canal from anus to mouth under a pressure varying from one-third of a pound to two pounds and a half.

5. Rectal insufflation of air or gas to be both safe and effective must be done very slowly and without interruptions.

6. The safest and most effective rectal insufflator is a rubber balloon large enough to hold 16 litres of air or gas.

7. Hydrogen gas should be preferred to atmospheric air or other gases for purposes of inflation in all cases where this procedure is indicated.

8. The resisting power of the intestinal wall is nearly the same throughout the entire length of the canal, and in a normal condition yields to diastaltic force of from eight to twelve pounds of pressure. When rupture takes place it either occurs as a longitudinal laceration of the peritoneum on the convex surface of the bowel, or as multiple ruptures from within outwards at the mesenteric attachment. The former result follows rapid, and the latter slow, inflation.

9. Hydrogen gas is devoid of toxic properties, non-irritating when brought in contact with living tissues, and is rapidly absorbed from the connective tissue spaces and all of the large serous cavities.

10. The escape of air or gas through the ileo-cæcal valve from below upwards is always attended by a blowing or gurgling sound, heard most distinctly over the ileo-cæcal region and by a sudden diminution of pressure.

11. The incompetency of the ileo-cæcal valve is caused by a lateral and longitudinal distension of the cæcum which mechanically separates the margins of the valve.

12 In gunshot or punctured wounds of the gastro-intestinal canal insufflation of hydrogen gas enables the surgeon to demonstrate positively the existence of the visceral injury without incurring the risks and medico-legal responsibilities incident to an exploratory laparotomy.

THE CONSUL GENERAL at Honolulu reports that many lepers leave the Sandwich Islands as soon as the disease appears, the greater number coming to the United States, in order to prevent being banished to the Island of Molokai.

THE

Journal of the American Medical Association.

PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, JUNE 30, 1888.

COMPLETION OF VOLUME X.

The present number completes the tenth volume of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the fifth year of its publication. As usual, it is accompanied by a full index and title-page, convenient for binding and future reference.

At the beginning of the fourth year, volume ix, it was found necessary and convenient to enlarge THE JOURNAL by the addition of four pages to the department for papers and original contributions, by which volumes ix and x were made to contain 832 double-column pages each, or a total of 1,664 pages for the year. Such has been the progress and material development of interest in THE JOURNAL that we shall commence the sixth year, volume xi, July 7, with the further addition of four more pages to the reading-matter, and present the whole in a new typographical dress—improvements that, we trust, will be gratifying to all its readers. This will make each of the future volumes contain 936 pages, or a total of 1,872 for the year, which is more than four times as much important reading-matter as members of the Association received in the single annual volume of Transactions before THE JOURNAL was established, and yet without any increase in the amount of the annual membership dues from each member. Under the former arrangement all the papers and proceedings were distributed in one volume not until from six to nine months after each annual meeting; while in THE JOURNAL at present every member gets, each week, as large an installment of papers and reports as he can find time to read, and before the time he formerly received his single volume he has already had not only all the papers

of the Association, but along with them a great variety of additional matter of equal value with that derived directly from the Association. Our chief embarrassment now is that so large a proportion of writers desire to have their papers published *at once*, apparently forgetting that they cannot have a journal regularly each week and at the same time have all the contents designed for six months put into the first six weekly issues. However, during the brief time we may continue to edit THE JOURNAL we shall continue, as heretofore, to give in each number of THE JOURNAL the greater part of the original department to such variety of the papers of the Association as will afford something of interest for the greatest number of readers, and a little space to voluntary contributions, remembering that a large proportion of these are also from members of the Association, and equally entitled to a hearing.

EDITORIAL NOTES.

ASSISTANT SECRETARY OF THE AMERICAN MEDICAL ASSOCIATION.—Dr. John B. Hamilton, who was Secretary of the Nominating Committee, writes that by an inadvertence he failed to put Dr. W. Thornton Parker, of Newport, R. I., on the list of nominees as reported by the Committee, for Assistant Secretary of the Association.

A MAN WITHOUT A LARYNX.—The Paris correspondent of the *Lancet* writes that he has recently seen a man, aged 37 years, upon whom Dr. Péan performed ablation of the larynx on February 27, 1886. He still wears the cannula introduced at that time, and when he speaks he closes the orifice of the cannula with his finger. His voice is not very audible, but is distinct.

NORTHWESTERN UNIVERSITY.—On Commencement Day, June 21, 1888, the corner-stone of the astronomical observatory building was laid with appropriate ceremonies, on the University grounds, at Evanston. The $25,000 required for the building was generously donated by Mr. J. B. Hobbs, of Chicago.

THE AMERICAN RHINOLOGICAL ASSOCIATION will hold its sixth annual meeting at Cincinnati, Ohio, September 12, 13 and 14, 1888. Secretary, Dr. John North, Keokuk, Iowa.

DR. E. MILLER REID, of Baltimore, has recently been elected Professor of Physiology, Hygiene and Clinical Medicine in the Baltimore University School of Medicine.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Held at Philadelphia, June 5, 6, 7 and 8, 1888.

(Concluded from page 792.)

THURSDAY, JUNE 7—THIRD DAY.

DR. H C. WOOD, of Philadelphia, delivered the

ADDRESS IN MENTAL DISORDERS.

The paper was devoted to considerations of the medico-legal relations of insanity. Reference was made to certain defects in the Pennsylvania lunacy laws. It was thought that trials in which this question arose might be rendered more just if an alienist should be on the bench as associate judge, or by reference to a commission whose finding might possibly be subject to review by the judges. Another recommendation was that the jury of six provided for by the law should be substituted by a commission of three, one to be a member of the legal profession, one of the medical profession, and one a man of business. In conclusion, the following resolution was offered:

Resolved, That the President be directed to appoint a committee of — members, who shall confer with the State Committee of Lunacy, and if, in the concurrent opinion of these committees, any changes are advisable in our laws relating to lunacy, shall have the power to represent this body in obtaining such legislation.

Action was deferred until later in the session.

Dr. J. Chris. Lange, of Pittsburgh, read a paper on *Some Influences of Disease upon the Mind.*

The *Address in Surgery* was delivered by Dr. Jas. McCann, of Pittsburgh, the subject being *Brain Surgery.*

The resolution presented by Dr. Jackson, on Tuesday, in regard to the

BOARD OF MEDICAL EXAMINERS

was taken up.

DR. J. H. PACKARD moved that the whole matter be referred to the Judicial Council for a decision whether or not the bill is in conformity with the Code of Ethics of American Medical Association.

This was decided out of order, on the ground that the Society had already on two occasions approved of this bill, and that the American Medical Association had approved a similar bill.

The resolutions were then adopted.

DR. JOHN V. SHOEMAKER, of Philadelphia, read a paper on

THE CAUSE AND TREATMENT OF PSORIASIS.

A patient was exhibited who had been the subject of repeated attacks of psoriasis for the past nineteen years. The interesting point was that each attack was associated with an attack of rheumatism. Various methods of treatment had been tried without avail. The author intended to try the effect of suppositories of ¼ to ½ grain of arsenious acid, the object being to make some impression upon the rheumatic state of the system.

AFTERNOON SESSION.

DR. B. ALEX. RANDALL, of Philadelphia, delivered the

ADDRESS IN OTOLOGY.

Attention was mainly directed to the treatment of ear disease by the general practitioner.

DR. L. J. LANTENBACH, of Philadelphia, then read a paper on

PREVENTION OF EAR DISEASE.

The paper referred to the prevention of ear affections by proper care in childhood.

DR. HARRISON ALLEN, of Philadelphia, read a paper on

GOUTY SORE THROAT,

giving the diagnostic points, and the methods of treatment which he had found of service.

DR. J. WILLIAM WHITE exhibited two patients on whom the

RADICAL OPERATION FOR THE CURE OF HERNIA

had been performed. Case one, was one of com plete oblique inguinal hernia. The bowels became strangulated in the sack by bands of lymph. The constriction was divided. The upper portion of the sack was drawn downward and tied. It was then removed. The stump was then next secured in the ring. The tissues on either side were brought together, the skin being not included. The upper two-thirds of the wound were closed in this way. The lower third was packed with iodoform gauze. Patient recovered without a bad symptom, and at present, ten weeks after operation, there is no signs of return of the hernia. In a second case, a similar operation was performed with the exception that an undeveloped testicle lying in the inguinal canal, and giving rise to pain, was removed.

DR. H. F. HANSELL, of Philadelphia, read a paper on

INSUFFICIENCY OF THE INTERNAL RECTI MUSCLES.

The following conclusions were presented:

1. In all cases of continual functional headache the extrinsic muscles of the eye should be examined.

2. Insufficiency is found in cases of emmetropia, hypermetropia, myopia and astigmatism.

3. The condition can be relieved by prisms and by tenotomy; when less than 10° by prisms, when greater, by the latter method.

In the experience of the speaker operation on both eyes had not been necessary.

DR. HEYL, of Philadelphia, read a paper on

CERTAIN EYE SYMPTOMS IN BRAIN DISEASE.

The object was to describe two abnormalities which he had met with. The first abnormality is the injection of a fine series of vessels coming off at right angles from the main retinal trunks. This he had found in cases of melancholia and also in meningeal congestion.

The second observation: Normally the combined calibre of the two vessels into which the central retinal artery divides is equal to that of the central artery. The abnormality consists in a diminished calibre of these two branches. This had been found in cases in which there was reason to suspect disturbance of the intra-ventricular fluid.

DR. CHAS. W. DULLES, of Philadelphia, made a

REPORT ON HYDROPHOBIA,

in which he maintained that in the human being so-called hydrophobia was not a true infectious disease.

DR. E. O. SHAKSPEARE thought that experimental research showed that hydrophobia was an infectious disease. The crucial test is the inoculation of rabbits with the medulla of individuals dying with hydrophobia and the transmission of the disease to the animal in this way. This test had been satisfactorily applied in many cases.

On motion Dr. Dulles was requested to continue his studies and report at the next meeting of the Society.

The President announced the following appointments for next year:

Address in Medicine, Dr. J. C. Wilson, Philadelphia.

Address in Surgery, Dr. J. B. Roberts, Philadelphia.

Address in Obstetrics, Dr F. N. Baker, Delaware Co.

Address in Hygiene, Dr. Thos. J. Mays, Philadelphia.

Address in Mental Disorders, Dr. Alice Bennett, Montgomery Co.

Address in Laryngology, Dr. W. H. Daly, Allegheny.

Committee to consider the Medical Examiners Bill, Drs. L. F. Flick, Edward Jackson, E. A. Wood, L. H. Taylor and Wm. F. Waugh.

Dr. Goodwillie, of New York, then read a paper describing *New Methods of Treatment of Hare-Lip and Cleft Palate in Infants.*

Dr. E. A. Wood offered a resolution as follows:

WHEREAS, The four Hospitals for the Insane under the care of the State of Pennsylvania are at present organized on either of two radically different plans, each claiming better results,

Resolved, That the President of this Society appoint a committee of thirteen, which shall include the superintendents and chief physicians of such State hospitals, to investigate into the relative merits of the two systems and report at the meeting of this Society in 1889. Adopted.

The afternoon session closed with a paper by Dr. Laurence Turnbull, Philadelphia, describing a case of ear disease in which a portion of the mastoid cells on one side were discharged, and on the other the semicircular canals and cochlea. There was facial paralysis, the portion of the bone through which the facial nerve passes also coming away. There was still a certain amount of hearing. The ear trouble had followed an attack of scarlet fever and diphtheria.

FRIDAY, JUNE 8—FOURTH DAY.

After the transaction of some routine business and the presentation of the newly elected officers, the Society adjourned to meet in Pittsburgh, the third Tuesday of May, 1889.

DOMESTIC CORRESPONDENCE

LETTER FROM BOSTON.

(FROM OUR OWN CORRESPONDENT.)

The Massachusetts Medical Society. One Hundred and Seventh Anniversary.

Private Mental Sanitaria and Inebriates—Therapeutic Nihilism—Uterine Displacements and their Influence on the General Nervous System—The Modern Practice of Surgery—Statistics and Climatology of Phthisis and Pneumonia in Massachusetts—Officers.

The one hundred and seventh anniversary of the Massachusetts Medical Society was held in Boston, June 12 and 13, and was attended by a number somewhat larger than usual of its members from various parts of the State.

First day, June 12.—The forenoon was devoted to an acceptance of the invitation to visit the Massachusetts General Hospital, the Boston City Hospital, the Children's Hospital, and the Carney Hospital. In the afternoon several interesting papers were read and discussed. The President of the Society, Dr. Thomas H. Gage, of Worcester, opened the meeting, and after a few words of welcome, called upon (1.) Dr. A. W. Thompson, of Northampton, who read a paper on "Private Mental Sanitaria and the Inebriates." The reader referred to the late Dr. S. B. Woodward, the first Superintendent of the State Asylum at Worcester, who, in 1835, held that inebriety is a disease, and that there should be a separate State hospital for its treatment. Whatever poison has produced the inebriety, the disease has reached the mind, and is a psychosis, and like other psychoses it should be treated as such. The inebriates should never be sent to an asylum, although many cases of inebriety have been cured in these. They have an injurious effect on the other classes. There should be one or two special places for inebriates, and these should be divided into wards and so forth, since these patients may be offensive to each other. The cottage and private hospital system, some say, are not suited to any psychosis; but the reader thinks that the whole system lay in a public need, and it has done much good work, although it is hardly more than fifteen years since it began. It now has firm root in New England and has stood the test of experience. In one particular, the large asylum has the advantage in the treatment of pyschoses, viz., the fact that the public Superintendent is a salaried officer, and is in a judicial relation to his patients. Secrecy as to his method is not possible, his reputation is not local, and there has to be no consideration of a private account at the bank. In many cases, discipline should be prescribed in doses, the same as we prescribe quinine or apply splints.

The ideal hospital, however, is the private hospital over which presides an ideal Superintendent. Honesty is the best policy in dealing with the insane. It is best he should be told that he is insane, and he should know the manner and the mode of restraint.

The discussion was opened by Dr. Edward Cowler, Superintendent of the McLean Asylum at Somerville, who said that this is a very important subject. The treatment of inebriety is a burning question of the day. It is a pyschosis. There have been occasional cases at the McLean Asylum, which is private but of larger dimensions than is usual for a private institution, and some of them have been cured; but the rule is: not to receive them. Experience shows that patients partly well, are unable to accommodate themselves to their surroundings. They make more demands, and they are of no assistance to the Superintendent in the care of others. There are also difficulties in the treatment of these cases in sanitaria, especially since a very small proportion of the patients who go there will remain long enough for a complete cure. Therefore there should be a special hospital for inebriates, when the inebriety has become a disease, and it should be under special law as to commitment, detention, etc.

Dr. Walter Channing, of Boston, endorsed Dr. Cowler in his statement that the treatment of inebriety is a failure in large hospitals. The compulsory law as to commitment now in force is a little aid to the friends, but it affords no relief to the inebriates themselves. Perhaps the patients can be kept happier in a small "home;" but this is no better fitted to cure them, and only certain patients can be satisfactorily treated in small places. The most violent should go to the large institutions. Dr. Channing also advocated a special institution for inebriates, with a special law as to commitment and detention for a definite period.

Dr. Charles P. Bancroft, Superintendent of the N. H. State Insane Asylum at Concord, thought that the proper care of the inebriates is difficult in public institutions, and probably it is so, too, in the private. Some special legislation is necessary, and in addition to the views of the other speakers, he advocated a certain amount of enforced labor; for the inebriate is generally lazy, and enforced idleness is demoralizing.

2. A paper entitled "Therapeutic Nihilism" was read by Maurice D. Clarke, M.D., of Haverhill, who began with the remark, that it has been said that there is a tendency toward therapeutic nihilism in Boston. If by this, is meant that we sit at the bedside with folded hands, and are waiters, and not workers, it may be somewhat true. The laity, however, necessarily, expect that we shall "do something." How often, after all details for the comfort and care of the patient have been carefully attended to, and accurate instructions for the continuation of the same, have we been asked: "But arn't you going to do something, doctor?" And this feeling is somewhat shared by the doctors themselves. One man said somewhere recently, that whereas rheumatic fever formerly meant Dover's powder and six weeks, it now means salicylic acid and six days. The lancet has now disappeared, and new drugs are coming on, which are advocated as specifics. Note how antipyrin and cocaine are said to be "good in" so many different diseases. Note also the old editions of the dispensatories and their similar statements concerning other drugs. The vast number of physi-

cians who are now annually sent out, materially aids in this. They look upon the practice of medicine as a trade, and they merely exchange the carpenters saw and the grocers scales for the scalpel and quinine. The treatment of the sick is a matter of temperament, and prevention, hygiene, and medication, etc., are the methods. Some run after new fashions, and thus we have experimental therapeutics; vicarious therapeutics; routine therapeutics; and rational therapeutics. Dr. Jacob Bigelow said fifty years ago: "The rational American requires evidence of what he may believe." However medication was in vogue then. It is not now so.

In discussion Dr. F. H. Williams, of Boston said that the term "experimental therapeutics" had had various interpretations, and the most modern of them deserves attention. Within the last few years there has arisen a new way of studying the action of drugs, chemically and physiologically, in large laboratories erected for the purpose. This is the case especially in Germany. When a drug is found here to have value, it is quite likely that it will be of some service to the practitioner. This study has just been begun. Recipes should become simpler. A mixture with a dozen or so ingredients is a mistake, and only one drug used for a definite purpose would be better.

Dr. E. P. Hurd, of Newburyport, remarked that there is a tendency among the junior practitioners to have almost unbounded faith in drugs, especially till they are taught by experience what is of the greatest advantage. Meddlesome treatment is bad. Much is to be expected from the germ theory.

3. Dr. Francis H. Davenport, of Boston, then read an exhaustive paper on "Uterine Displacements and their influence on the General Nervous System." The reader said these uterine displacements have been recognized from the very earliest time. They give rise to both local and general symptoms. The *tactus eruditus* is now seeking new worlds to conquer, and trained men can now find by palpation the Fallopian tubes and the ovaries, and even the round ligaments. Next will follow the palpation of the ureters and some of the muscular tissues. In the treatment pessaries of all forms are recommended. Progress, however, is now in the direction of operative measures which are now daily performed, much bolder than was dreamed of twenty years ago: *e. g.*, laparotomy and suturing of the uterus to the abdominal walls for the cure of retroflexion, Alexander's operations on the round ligaments, Sänger's method of tearing the adhesion binding down a retroflexed uterus, and Byford's operation for shortening the round ligaments through the vagina.

Curiously enough the normal position of the uterus has been settled only very recently. It is absurd to apply the same rules to the uterus as to a fixed body like the kidney. It is now considered that the normal position of the uterus varies within certain limits according to the conditions of distension of the bladder and rectum. The variations outside of these normal limits are considered by some to be the causes and by others the effects of the other troubles and symptoms; and their treatment, locally or generally, varies accordingly. Neither extreme is probably correct, but there is a mean between them.

The relationship between the genital organs and the nervous system is so rigid that it was on this account the ancients applied the term hysteria to certain nervous affections. This is not absolutely correct; for hysteria may occur in men as well as in women. Hysteria in women and neurasthesia due to the genitals generally occurs between the ages of puberty and the menopause. Ovarian disease is probably the most active in causing these nervous disturbances. Also neglected lacerations of the cervix will do it, especially if the perineum is also torn. Chronic metritis, etc., and displacements add to the difficulties. Backward displacements are more severe, occur oftener, and are of greater degree. Hence from them the disturbance is greater. Anteversion, pure and simple, occurs rarely, but when complicated with descent it is not rare. Retroversion is the most common form of displacement, and if the angle of displacement is not over 90° there may be no symptoms. If greater than this, there occurs pressure on the rectum, etc., and the greater it is the more the weight of the intestines comes upon the uterus and we have prolapse also. The minor grades are not detected in the ordinary method of examination, for the uterus falls back. To detect such minor degrees the standing position is the best. Displacements are not always primary. When they are primary the treatment should be local, unless the general tone is too bad to allow it until this is improved. If there are no adhesions the replacement, even in the unmarried patient, can be made at one sitting under ether. If there are adhesions the slow method of packing the vagina will be necessary. If there are tears of the perineum of and importance, which may occur even if they do not appear so from the outside, these should be first repaired.

4. A paper on "The Modern Practice of Surgery" was next read by Dr. Otis K. Newell, of Boston, who said, that men live so much in their own day that they are apt to think no further improvement possible. In the old day the peritoneum was considered fatal even to the touch; now the danger of exploration of the peritoneum is chiefly nil. Intercommunication so aids in the dissemination of knowledge that it is hard to keep properly informed. Particularly have the studies regarding antiseptic treatment been so great that it is almost impossible to keep pace. A successful combination of the physician with the surgeon is impossible. The surgeon should have special training. A man should not now be allowed to die of apendicitis since it has been worked up by some. Antisepsis and asepsis are now as important as anæsthesia, and the surgeon should be held accountable for aseptic healing. We can now successfully operate, 1. Upon organs in the cavities, as in the pleural, peritoneal and the meningeal cavities. 2. Resection of organs in continuity. 3. Resection of individual organs. 4. Extirpation of organs. 5. Replacement of defects by transplantation in plastic operations from the same

or other individuals or from animals. 6. Restoration and retention of displaced organs. Also Bigelow's lithoplaxy and endoscopic examination of the bladder. Orthopœdic surgery is now taking the place of mechanical treatment. The surgeon should not be deterred from operation by a possibility of bad result. Then the reader referred to the relation of legitimate medical practice to quackery, saying that "In medicine, unlike any other science, the quack is only readily detected by him who is well versed in the art itself, and it, therefore, devolves upon the physician more than any one else to aid in his exposure and extermination. If the united efforts of this Society cannot soon succeed in establishing the most effective laws for the quick suppression of such vice, there is one way, I believe, in which it can be done. I refer to the education of the public in general medical, hygienic and sanitary affairs. In other communities this is already being done with great effect, and here in spite of the insulting lack of legal support, the medical profession is doing much in the same direction. The great value in educating the public in regard to the prevention and cure of disease is already recognized, and quite universally, to a greater or less degree, especially in hygienic and sanitary matters, being put into practice.

5. The next paper, "A Study of Phthisis and Pneumonia in Massachusetts, Statistical and Climatological," read by W. Everett Smith, M.D., of Boston, showed an exhaustive research into the statistics which were available to the writer, but no idea of the value of it nor the amount of labor involved in its preparation can be given without a reproduction of the admirable tables which so graphically stated the facts obtained by the writer.

The paper was inspired by a statement of Dr. H. I. Bowditch, who said in 1862 that consumption was not equally distributed in accordance with the amount of soil moisture. It is impossible, however, to establish this at present, since there are no data, and the Society passed a vote appointing Dr. Smith a committee to confer with Prof. Shaler and Gen. Greely on this subject, who within the next three years will publish a series of fifty-two maps in relation to this subject, showing the soil structure and other geological features.

In connection with the meeting there is an exhibit of drugs and preparations, foods, surgical instruments and apparatus, books, etc., by the leading manufacturers and dealers of Boston and New York. There are also some very interesting, curious old instruments loaned by the Harvard Medical School; and some excellent models of very large size, of bones, muscles, etc., designed by Dr. Thomas Dwight for purposes of instruction in anatomy.

OFFICERS FOR ENSUING YEAR.

The following officers were elected by the Councillors for the ensuing year:

President, Dr. David W. Cheever, of Boston; Vice-President, Dr. George Jewett, of Fitchburg; Treasurer, Dr. Frank W. Draper, of Boston; Corresponding Secretary, Dr. Chas. W. Swan, of Boston; Recording Secretary, Dr. Francis W. Goss, of Roxbury; Librarian, Dr. Edwin H. Brigham, of Boston; Orator, Dr. Henry P. Walcott, of Cambridge; Anniversary Chairman, Dr. James R. Chadwick, of Boston.

(To be concluded.)

MISCELLANEOUS.

DR. S. WEIR MITCHELL.—The University of Bologna, on the occasion of the eight hundredth anniversary of its foundation, conferred its honorary degree upon several representatives of literature, science and art, and included in the list was Dr. S. Weir Mitchell, of Philadelphia, who represented the National Academy of Science on the occasion.

IMPURE WATER.—In Canton, Mass., the employés of the rolling department have been prostrated by drinking impure water to such an extent that it is feared it will be necessary to close the works of the Kinsley iron and machine company.

A MONUMENT to COHNHEIM was unveiled at Leipzig, with appropriate ceremonies, on June 3.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY, FROM JUNE 16, 1888, TO JUNE 22, 1888

Major Wm. E. Waters, Surgeon, granted leave of absence for twenty days, to take effect about June 15, 1888. S. O. 64, Dept. Columbia, June 8, 1888.

Major Calvin DeWitt, Surgeon, granted leave of absence for one month, with permission to apply for an extension of one month. S. O. 52, Dept. Dak., June 9, 1888.

Major Robert H. White, Surgeon, ordered from Angel Island, Cal., to Ft. Myer, Va. S. O. 142, A. G. O., June 20, 1888.

Capt. Curtis E. Munn, Asst. Surgeon, ordered from Ft. Klamath, Ore., to Angel Island, Cal. S. O. 142, A. G. O. June 20, 1888.

Capt. Geo. H. Torney, Asst. Surgeon, relieved from duty at Ft. Monroe, Va., and ordered to Ft. Randall, D. T. S. O. 142, A. G. O., June 20, 1888.

Capt. Geo. McCreery, Asst. Surgeon, relieved from duty at Ft. Meade, D. T., and ordered to Ft. Monroe, Va., for duty. S. O. 142, A. G. O., June 20, 1888.

Capt. Wm. C. Gorgas, Asst. Surgeon, relieved from duty at Ft. Randall, D. T., and ordered to Ft. Barrancas, Fla. S. O. 142, A. G. O., June 20, 1888.

First Lieut. Edward R. Morris, Asst. Surgeon, leave of absence granted in S. O. 61, May 28, 1888, Dept. of Ariz., extended one month. S. O. 142, A. G. O., June 20, 1888.

First Lieut. Eugene L. Swift, Asst. Surgeon, ordered from Ft. Spokane, W. T., to Ft. Klamath, Ore., for temporary duty. S. O. 142, A. G. O., June 20, 1888.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING JUNE 23, 1888.

Asst. Surgeon R. P. Crandall, from "Minnesota" and to the "Saratoga."

Medical Director Edward Shippen, placed on retired list June 18, 1888.

Asst. Surgeon J. S. Sayre, to the Navy Yard, New York.

Medical Inspector Michael Bradley, ordered to examination for promotion.

Surgeon Edward Kershner, ordered to Marine Rendezvous, New York.

Surgeon C. H. White, detached from Museum of Hygiene and wait orders.

Surgeon J. Rufus Tryon, from Marine Rendezvous, N. Y., and special duty, N. Y.

P. A. Surgeon Rufus McCarty, from Naval Hospital, Chelsea, Mass., and to the "Yantic."

P. A. Surgeon L. G. Henneberger, from special duty, New York, and to the "Minnesota"

Asst. Surgeon I. W. Kite, from "Yantic" and to the "Richmond."

Surgeons Woolverton, White, Woods and DuBois, ordered for examination preliminary to promotion to the grade of Medical Inspector.

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